Treatment of non-communicable disease in rural resource-constrained settings: a comprehensive, integrated, nurse-led care model at public facilities in Rwanda

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Abstract

Background Low-income countries face a dual burden of endemic chronic non-communicable diseases (NCDs) and limited resources to implement control strategies. Access to services is even more challenging for patients in countries like Rwanda, where more than 80% of the population reside in rural areas, and there is fewer than one health care provider per 1000 people. Many studies of NCD care delivery models in low-income countries are limited to simple conditions or focus on a single disease. Since 2007, Partners in Health/Inshuti Mu Buzima (PIH/IMB) has been supporting delivery of NCD services at Ministry of Health facilities. Here we describe the model implemented and baseline characteristics of patients served.

Methods Comprehensive NCD services are provided by nurses to patients with an array of complex conditions including heart failure, chronic cancer pain, hypertension, diabetes, and chronic respiratory diseases on disease-specific clinic days. Nurses receive training and longitudinal mentorship from specialist physicians and use reference-standardised diagnosis and treatment protocols. Point-of-care diagnostics are used, such as haemoglobin A1c for patients with diabetes and coagulation testing for patients on warfarin after cardiac valve surgery. Nurses are also able to perform simplified echocardiography to inform initial management of heart failure. Group education sessions and socioeconomic supports are also offered to patients. District hospital nurses serve as mentors for health centre nurses. Community health workers provide support to high-risk patients. Clinical information is documented in structured forms that are compiled in individual patient charts, and entered in an electronic medical records system. These programmes are integrated within MOH facilities and most clinicians are MOH employees.

Findings At Sept 30, 2014, three district hospitals and seven health centres have implemented PIH/IMB-supported NCD programmes. 3367 patients have been enrolled, of whom 67% are female (mean age 48·1 years [SD 19·8]). Disease categories, in descending order of predominance, are: hypertension (30%), chronic respiratory disease (26%), heart failure (26%), and diabetes (16%). A small proportion (2·5%) of patients are HIV positive and 1% have more than one NCD diagnosis. More than 80% (3014) of patients live in rural districts, and of these more than 60% of those with documented occupation (683 out of total documented 1112) are subsistence farmers.

Interpretation An integrated, nurse-led NCD care model has been effectively implemented in Rwanda, providing comprehensive longitudinal care embedded within the public health system in a rural resource-constrained setting. That so many patients have been treated highlights the NCD needs in rural poor populations. Positive outcomes have been described previously for heart failure, and outcomes assessments for diabetes, post-cardiac surgery, and hypertension are underway. The experience from these facilities has contributed to ongoing scale-up of district level NCD services throughout Rwanda.

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Declaration of interests
We declare no competing interests.